

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method comprising:  
preparing a bonding surface of a heat dissipating member; and  
bonding a thermal interface material ~~layer~~ including a metallic solder to the bonding surface, the thermal interface material ~~layer~~ to thermally couple the heat dissipating member to a heat conducting component by an impermanent attachment, the bonding including providing at least the thermal interface material in a vacuum chamber under vacuum conditions, and heating the thermal interface material and providing a pressurized inert atmosphere in the vacuum chamber to form liquid metallic solder, the pressurized inert atmosphere being from about 15 to about 40 pounds per square inch (p.s.i.).

2. (Original) The method of claim 1, wherein the bonding of the thermal interface material is achieved without using a solder flux.

3. (Original) The method of claim 1, wherein the bonding of the thermal interface material comprises forming an intermetallic bond.
4. (Original) The method of claim 1, wherein the preparing of the bonding surface comprises plating the bonding surface with at least one wetting layer.
5. (Previously Presented) The method of claim 4, wherein the at least one wetting layer comprises one of gold (Au) and nickel (Ni).
6. (Original) The method of claim 1, wherein the metallic solder has a melting point that is greater than an operating temperature of the heat conducting component.
7. (Original) The method of claim 1, wherein the metallic solder comprises one of indium and an alloy thereof.
8. (Previously Presented) The method of claim 1, wherein the heat dissipating member comprises one of copper (Cu) and aluminum (Al).

9. (Original) The method of claim 1, wherein the bonding comprises:  
reflowing the metallic solder on at least a portion of the bonding surface to  
form a liquid metallic solder layer; and  
allowing the liquid metallic solder layer to cool to a temperature of less than  
the melting point of the metallic solder.

10. (Previously Presented) The method of claim 1, wherein the bonding  
comprises:  
placing the metallic solder and the heat dissipating member into the vacuum  
chamber;  
placing the vacuum chamber under vacuum conditions;  
heating the metallic solder to a temperature of greater than or equal to the  
melting point of the metallic solder to form the liquid metallic solder; and  
disposing the liquid metallic solder on at least a portion of the bonding  
surface to form a liquid metallic solder layer.

11. (Previously Presented) The method of claim 10, wherein the bonding further  
comprises providing a first inert environment in the vacuum chamber after placing the  
vacuum chamber under vacuum conditions.

12. (Currently Amended) The method of claim 11, wherein ~~the bonding further comprises providing a pressure environment~~ the pressurized inert atmosphere in the vacuum chamber is provided after providing a first inert environment in the vacuum chamber.

13. Canceled

14. (Previously Presented) The method of claim 12, wherein the bonding further comprises:

allowing the liquid metallic solder layer to cool to a temperature of less than the melting point of the metallic solder; and

removing at least a portion of the second pressure environment from the vacuum chamber.

15. (Currently Amended) A method comprising:

placing a metallic solder and a heat dissipating member having a bonding surface into a vacuum chamber;

placing the vacuum chamber under vacuum conditions;

heating the metallic solder to a temperature of greater than or equal to the melting point of the metallic solder to form a liquid metallic solder, the heated temperature being about 10°C to about 300°C;

purging the vacuum chamber of oxygen gas and providing a pressurized inert atmosphere in the vacuum chamber, the pressurized inert atmosphere having a pressure of from about 0 to 100 pounds per square inch (p.s.i.);

disposing the liquid metallic solder on at least a portion of the bonding surface to form a liquid metallic solder layer;

removing at least a portion of the pressurized inert atmosphere from the vacuum chamber; and

allowing the liquid metallic solder layer to cool to a temperature of less than the melting point of the metallic solder.

16. (Original) The method of claim 15, wherein the metallic solder comprises a fluxless metallic solder.

17. (Previously Presented) The method of claim 15, further comprising providing a wetting layer including one of a gold (Au) plating and a nickel (Ni) plating on

the bonding surface prior to placing the heat dissipating member into the vacuum chamber.

18-30. (Canceled)

31. (Currently Amended) A method comprising:
- providing a metallic solder in a vacuum chamber under vacuum conditions by at least removing an amount of oxygen gas from the vacuum chamber;
  - heating the metallic solder to at least a melting temperature of the metallic solder while in the vacuum chamber;
  - providing a pressurized inert atmosphere in the vacuum chamber while the metallic solder is in the vacuum chamber, the pressurized inert atmosphere having a pressure from about 0 to 100 pounds per square inch (p.s.i.);
  - providing the heated metallic solder onto a bonding surface while the metallic solder is in the vacuum chamber; and
  - allowing the heated metallic solder to cool to a temperature less than the melting point of the metallic solder.

32. (Previously Presented) The method of claim 31, wherein the inert atmosphere comprises a nitrogen atmosphere or an argon atmosphere.

33-34. Canceled

35. (Previously Presented) The method of claim 31, further comprising removing at least a portion of the inert atmosphere from the vacuum chamber.

36. (Previously Presented) The method of claim 31, wherein providing the heated metallic solder onto the bonding surface includes bonding the heated metallic solder to the bonding surface without a solder flux.

37. (Previously Presented) The method of claim 1, wherein the bonding includes providing an inert environment in the vacuum chamber prior to heating the thermal interface material.

38. (Previously Presented) The method of claim 37, wherein the bonding further includes providing a pressurized environment in the vacuum chamber after providing the inert environment.

39. (Previously Presented) The method of claim 38, wherein the bonding further includes providing the liquid metallic solder on the bonding surface.

40. (Previously Presented) The method of claim 39, wherein the bonding further includes removing at least a portion of the inert atmosphere from the vacuum chamber.

41. (Previously Presented) The method of claim 40, wherein the bonding further includes allowing the liquid metallic solder layer to cool.

42. (Previously Presented) The method of claim 15, wherein the placing the vacuum chamber under vacuum conditions includes removing a portion of an initial atmosphere from the vacuum chamber.

43. (Previously Presented) The method of claim 42, wherein removing the portion of the initial atmosphere includes removing oxygen gas from the vacuum chamber.